



## A CASE REPORT ON THE MANAGEMENT OF SULCUS VOCALIS WITH REFERENCE TO SWARASADA

Aswathy V J<sup>1</sup> Subin V R<sup>2</sup> Binitha A<sup>3</sup>

<sup>1</sup> PG scholar <sup>2</sup> Professor Department of Panchakarma VPSV Ayurveda College Kottakkal Kerala

<sup>3</sup> Professor Department of Panchakarma VPSV Ayurveda College Kottakkal Kerala

Corresponding Author: [aswathyvj612@gmail.com](mailto:aswathyvj612@gmail.com)

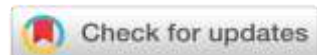
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### ABSTRACT

<sup>1</sup>Sulcus vocalis is a condition characterized by a groove or infolding of the mucosa along the surface of the vocal fold, disrupting the normal physiology of vocal fold vibration and impacting voice production. Common symptoms include hoarseness, vocal fatigue, voice weakness, and increased effort, particularly concerning working professionals who rely on speech for communication and quality of life. While treatment options like phono surgery and speech therapy exist, phono surgery often yields disappointing results, typically limited to increased voice loudness. In Ayurveda, this condition aligns with *Swarasada*, attributed to factors such as <sup>2</sup>*Athyucha bhavana* (loud speaking) and *abhighata* (trauma), leading to dosha invasion in *sabdhavahi siras* and causing speech difficulties.

Presented here is a case report involving a 33-year-old IT professional experiencing hoarseness, vocal fatigue, and weakness. Upon bronchoscopy, the diagnosis initially indicated muscle tension dysphonia, later revealing bilateral sulcus vocalis with GERD. The patient underwent *Nasya*, *Gandusha*, and *Sneha Sweda* procedures alongside internal medication. Following a one-month review, the patient exhibited marked improvement in voice clarity. Notably, modern treatments provided only temporary relief. This case report underscores the effective management of sulcus vocalis through Panchakarma treatments and internal medications, showcasing consistent relief over a three-month review period.

**Keywords:** Sulcus vocalis, Swarasada, Gandusha, Nasya, Sirodhara

## INTRODUCTION

Speech is a fundamental means of communication, encompassing fluency, articulation, and voice. Voice production involves intricate phonatory, respiratory, and resonatory systems, with pitch, loudness, and quality as critical parameters. Voice disorders arise when these parameters deviate from the normal. Abnormal voice is characterized by attention-grabbing attributes that may not align with the speaker's occupational or social requirements or may be inappropriate for age, gender, or situation. Voice disorders are broadly classified into organic and functional categories.

Organic voice disorders involve structural changes in the voice production system. Sulcus vocalis results from structural abnormalities in the vocal folds, characterized by a focal invagination of the epithelium attaching deeply to the vocal ligament. The lack of tissue causes a divot, earning the disorder its medical term "sulcus," which translates to "cleft" or "furrow" in Latin. Sulcus vocalis forms a groove primarily along the edge of the superficial lamina propria, extending to the intermediate and deep layers in severe cases.<sup>1</sup> Three types of sulci vocalis are identified: physiologic sulcus (type 1), sulcus vergeture (type 2), and sulcus vocalis proper (type 3). The physiologic sulcus is a longitudinal depression along the superficial layer of lamina propria, preserving vibratory activity and the anatomic layer. Sulcus vergeture is a more extensive indentation that does not reach the vocal ligament, involving the loss of lamina propria layers. Sulcus vocalis proper is a focal pit extending beyond the vocal ligament into the thyro-arytenoid muscle.

Determining the incidence of sulcus vocalis presents challenges due to the diverse range of presentations and diagnostic complexities. Many sulci go undetected owing to subclinical symptoms, limited clinician awareness, and difficulties in identification, often exacerbated by the constrained availability of laryngeal video stroboscopy.

The incidence of sulcus vocalis ranges from 0.4 to 48%, yet the diseases are not so familiar to us.

The etiology of this disorder remains insufficiently explored and poorly comprehended. The three causes of sulcus vocalis are congenital, acquired, and of unknown origin.

The management of sulcus vocalis involves two main approaches: medical (surgical) and non-medical (behavioral modification, counseling, and voice therapy). Surgical management encompasses vocal fold medialization, involving intrafold injection and medialization surgery. Studies indicate that the outcomes of surgical interventions for sulcus vocalis are unpredictable, and there is a risk that the post-operative voice may be worse than the preoperative one. Therefore, voice therapy is often considered as the initial treatment option before opting for any surgical management. A study has documented voice therapy's immediate positive effects, utilizing a multiparametric approach in voice assessment. Notably, these treatments present a cost-effective alternative, with voice therapy providing immediate improvement compared to the potentially unpredictable outcomes of surgical procedures.

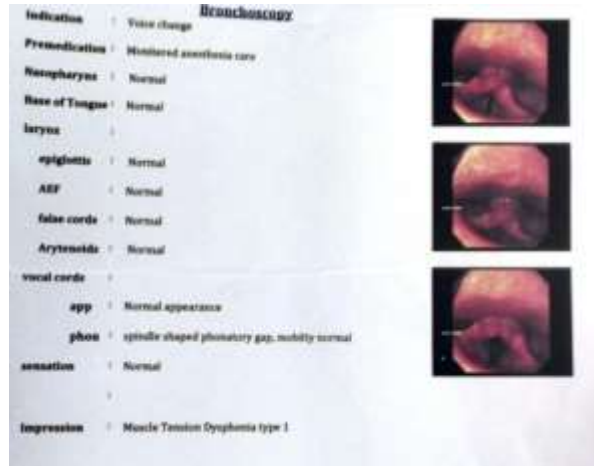
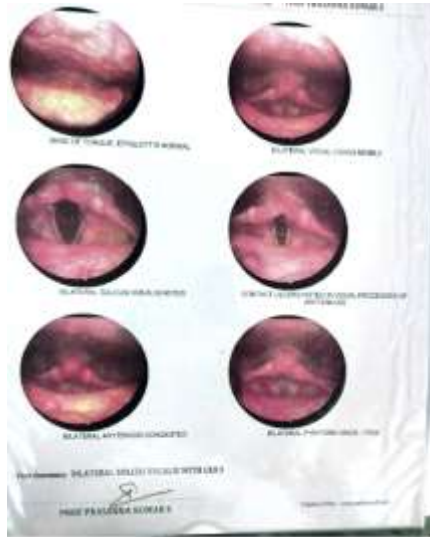
Our classical texts mention six types of *Swarasada*. The condition arises due to factors such as trauma<sup>2</sup> (*Abhighata*), excessive use of sound (*Athyuchabhashana*), and grief, leading to the aggravation of Doshas. These Doshas then invade the *Sabdavahisira* (vocal cords) and become lodged in the *Kantasthana* (throat region), resulting in the disease. Ayurvedic remedies for *Swarasada* typically involve therapeutic interventions such as<sup>3</sup> *Nasya* (nasal administration), *Dhooma* (smoke therapy), *Snehasweda* (oil fomentation), *Gandusha* (gargling), *Kabala* (gargling or rinsing), and *Samana* (internal medicines). A different drug combination with external treatment, such as *Sirodhara*, is mentioned in the textbook, like *Yogamritha*. After 14 days of IP management, internal medicines were given for one month, after which,

in follow-up, the patient got satisfactory relief from symptoms.

**CASE DETAILS**

A 33-year-old male IT professional was admitted to the IPD of Dhanwanthari Bhavan Hospital, Kottakkal, with complaints of Hoarseness of voice, vocal fatigue, voice weakness & need for excess effort for talking. He had recurrent tonsillitis 5-6 times

/month & underwent tonsillectomy in 2020. After a year, the patient developed hoarseness of voice, which was noticeable to others during conversation. In 2021, bronchoscopy revealed muscle tension dysphonia type 1 & endoscopy revealed b/l sulcus vocalis in 2022. He started speech therapy and got considerable relief after discontinuing the speech therapy; consequently, his voice regressed to its initial problematic state.



**Personal History:**

- Bowel – Normal, regular
- Micturition – Within normal limit
- Appetite – good

- Sleep- sound
  - Built – Normal
  - History of addiction on smoking and alcohol
- Astha Sthana Pariksha** - Assessment of the general condition of the patient

**Table 1**

Naadi	Kapha pitta
Mootram	Anavilam
Malam	Abadham
Jihwa	Anupaliptham
Shabdha	Aspasthanam
Sparsha	Anushna sheetham
Drik	Prakrutham
Aakriti	Madhyama

**Clinical examinations**

On examinations of CNS – all findings were found to be normal.

CNS examination findings

Higher mental functions – intact

Motor system (bulk, tone, power, reflex, co-ordination) – intact  
 Sensory system – intact  
 Cranial nerves – intact

#### <sup>4</sup>GRABS VOICE RATING SCALE

**Table 2**

Components	Description	Grade
Grade	Degree of hoarseness of voice	3
Roughness	Impression of irregularity of vibration of vocal folds	3
Breathiness	The examiner can hear the degree of air escaping from between the vocal fold	1
Asthenia	Degree of weakness heard in the voice	3
Strain	Extend to which strain or hyper-functional use of phonation is heard	3
Instability	Changes in voice quality over time	2

Rating scale 0-normal

1-slight

2-moderate

3-severe

#### **Findings**

2021-On bronchoscopy –Muscle tension dysphonia type1

2022-Bilateral sulcus vocalis with GERD

#### **Therapeutic Strategy**

The patient was subjected to the following line of treatment. The scheduled treatments are mentioned below.

**Table 3: Procedures**

Procedure	Medicine	Dose
<i>Ksheeradhooma</i>	<i>Bala moola Ksheera kashaya</i>	1 litre
<i>Nasya</i>	<i>Shadbindhu taila</i>	1ml each nostril -7 days
<i>Pratimarsha Nasya</i>	<i>Shadbindhu taila</i>	2 drops each nostril
<i>Shirodhara</i>	<i>Maha Narayana taila</i>	1.5 liter
<i>Gandusha</i>	<i>Irimedadi taila +hot water</i>	10ml of taila

**Table 4: Internal medicines**

Medicine	Dose	Anupana
1. <i>Pathyaksha Dhatryadi kashaya</i>	90ml	
2. <i>Triphala guggulu</i>	2-0-2	
3. <sup>5</sup> <i>Kashaya (Rasna, Agaru, Vasa moola, Yasti Madhu )</i>	90ml	
4. <i>Vidaryadi ghritham</i>	1tsp	<i>Kashayam</i>

**Table 5: Discharge of medicines**

Medicine	Dose
Perment Capsule	2-0-2(after food)
<i>Shadbindhu taila</i>	2 drops each nostril (before 7 pm)
<i>Gandusha –Irimedadi taila</i>	quantity sufficient
<sup>5</sup> <i>Kashaya–Rasna, Agaru, Vasamoola, Yasthi madhu</i>	10 gm each with three glasses of water and reduced to ¾ the glass (empty stomach)
<i>Vidaryadi ghritham, along with kashaya</i>	1teaspoon

### Follow-up medicines.

After one month

1. Perment 2-0-2(after food)
2. *Shadbindhu*- 2 drops each nostril (before 7 pm)
3. *Gandoosha* –*Irimejadi taila*
- 4.<sup>5</sup>*Kashaya* –*Rasna, Agaru, Vasa moola, Yasthi madhu* -10 gm each with three glass water and reduced to ¾ the glass (empty stomach)
5. *Vidaryadi ghritham* – 1 tsp along with *kashaya*

### Outcome of treatment

The patient felt relief after 14 days of IP management and internal medication. Treatment started with *Ksheeradhooma* along with *marsha nasya* for seven

days. After that treatment, the patient felt clarity & throat clearance. Then, *Nasya* was changed to *Pratimarsha* and started *Shirodhara* along with *Gandusha* for seven days. The patient was discharged after 14 days of treatment and given internal medication along with *Gandusha* & *Pratimarsha nasya*. After a 1-month review, the patient felt improvement in his voice while he was speaking on a high pitch. He was advised to continue the same medication for one more month. Again, after three months of the review period, the patient had clarity in voice and much reduction in hoarseness, and the GRABS score was reduced from 15 to 8.

Components	Description	Grade
Grade	Degree of hoarseness of voice	1
Roughness	Impression of irregularity of vibration of vocal folds	1
Breathiness	The examiner can hear the degree of air escaping from between the vocal fold	1
Asthenia	Degree of weakness heard in the voice	2
Strain	Extend to which strain or hyper-functional use of phonation is heard	1
Instability	Changes in voice quality over time	2

**Table 6: GRABS VOICE RATING SCALE**

Rating scale 0-normal

1-slight

2-moderate

3-severe

## DISCUSSION

The clinical symptoms, such as voice fatigue, hoarseness, and weakness, align with *Tridoshaja Swarasada*, primarily with *Vata* predominance. The affected *Dhatu*s are *Rasa*, *Mamsa*, and *Srotas is Praanavaha*. The *Doshas* involved are *Pranavatha*, *Udanavatha*, *Vyanavatha*, and *Tharpakakapha*. The general approach for managing *Swarasada* includes *Nasya*, *Dhuma*, *Gandoosha*, and *Snehasweda*, complemented by appropriate internal medications. Initial IP management involved *Nasya* and *Ksheeradhuma*. *Swarasada* is categorized as a *Urdwajathrugatha vikara* (diseases above neck), where *Vakpravrutthy* is the function of *Udanavatha*, and *Kanda* is the route of *Pranavata*. Considering the vitiation of both *Udanavata* and *Pranavata* and the involved *Sthanika Dosh*a, which is *Tharpaka kapha*, *Nasya* is deemed beneficial. The internal medicines provided focus on

*Tridosha hara*, primarily targeting *kapha* and *vata*. *Shadbindhu taila* was chosen for *Nasya* due to its *Brihmana* and *Doshahara* properties. <sup>6</sup>*Yogamritha* indicates the direct use of *Ksheeradhooma* in *Swarasada* cases. *Ksheeradhooma* serves *Swedana*, aiding better drug absorption in *Nasya* and alleviating *Vatha* and *Kapha*, breaking the *Srotorodha*. *Sirodhara*, using *Mahanarayan taila*, is indicated in *Swarasada* in *Yogamritha*, specifically targeting *jihwa anila* and generally addressing *Urdhvajatrugata Vikaras*. *Gandusha*, a standard treatment for *Swarasada*, provides the main benefit of *Swarabala* through *Gandoosha-Irimejadi taila*. Internal medicines are given *Pathyakshadhatryadi kashaya*, which has the property of *Urdhwajatru vikara nasana* and *kapha vata hara*. *Triphala Guggulu* having *vata kapha hara* in action.

Following 14 days of inpatient management, the patient was discharged with advice to continue *Nasya* using *Shadbindhu taila* and *Gandoosha* regularly.

Internally, the patient was recommended to take Perment tablet, a combination of *Bacopa monnieri*, *Withania somnifera*, *Asparagus racemosus*, and *Clitoria ternatea*, primarily aimed at reducing psychological stress. Additionally, a *kashaya* preparation containing <sup>4</sup>*Rasa*, *Agaru*, *Yastimadhu*, and *Vasa moola* was advised with a variant formulation from *Chikitsa Manjari*, known for its *Kapha-Vata hara* action. Continuing *Vidaryadi ghrta* along with the *kashaya*, known for its *Brihmana action*, and *Vata-anulomata*, along with *Urdhwa Swasa Kasa hara* properties, was also recommended. Upon a one-month follow-up, the patient reported improved voice, particularly in high pitch. The patient was advised to continue the same medication for another month. After two months of internal medication following inpatient management, the patient experienced a significant 60% improvement in their previously compromised voice.

## CONCLUSION

This case study explores the effectiveness of various Panchakarma treatments as outlined in Kerala textbooks for *Swarasada* conditions. While there are diverse internal and external procedures available, some are not widely practiced. The findings of this case study demonstrate that Ayurvedic treatments can be effective in enhancing voice in such conditions. It is important to note that a single study may not con-

clusively establish the significance of Ayurvedic treatment in this context. However, it provides a valuable starting point for developing a treatment protocol that can be adopted and further investigated.

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